

- 1 1. An apparatus for removal of contaminants from remote surfaces comprising:  
2 an elongate delivery tube having a lumen extending therethrough and having a  
3 first end and a second end connectable to a source of high pressured fluid to allow fluid  
4 communication with the delivery tube lumen;  
5 a nozzle operatively coupled to the first end of the delivery tube, the nozzle  
6 having at least one orifice in fluid communication with the delivery tube lumen; and  
7 means for positioning the nozzle in the proximity of the contaminants.
- 1 2. The apparatus of claim 1 wherein the means for positioning the nozzle  
2 comprises:  
3 an elongate guide tube having a lumen extending therethrough; and  
4 wherein the elongate delivery tube is disposed within the lumen of the guide  
5 tube.
- 1 3. The apparatus of claim 2 wherein the elongate guide tube extends along a main  
2 axis and has a distal portion thereof with a bend radius that deviates from the main axis  
3 of the guide tube by an off axis angle.
- 1 4. The apparatus of claim 3 wherein the distal portion of the guide tube deviates  
2 from the main axis of the guide tube by an off axis angle of between 0 degrees and 180  
3 degrees.
- 1 5. The apparatus of claim 1 wherein the means for positioning the nozzle  
2 comprises:  
3 an elongate positioning member; and  
4 means for securing the positioning member to the elongate delivery tube.
- 1 6. The apparatus of claim 1 further comprising:

2           an adapter mechanism having a lumen extending therethrough,  
3           the adapter mechanism operatively coupled to the elongate delivery tube so that  
4 the adapter mechanism lumen is in fluid communication with the lumen of the elongate  
5 delivery tube.

6  
7 7.     The apparatus of claim 6 further comprising:  
8           a plurality of nozzles each operatively coupled to the adapter mechanism and in  
9 fluid communication with the lumen of the elongate delivery tube.

1 8.     The apparatus of claim 6 wherein the adapter mechanism has a substantially L-  
2 shaped lumen extending therethrough.

1 9.     The apparatus of claim 6 wherein the adapter mechanism has a substantially T-  
2 shaped lumen extending therethrough.

1 10.    The apparatus of claim 6 wherein the adapter mechanism is coupled  
2 intermediate the elongate delivery tube and the nozzle.

1 11.    The apparatus of claim 10 wherein the elongate delivery tube comprises a plurality  
2 of sections and wherein the adapter mechanism is coupled intermediate a plurality of  
3 elongate delivery tube sections.

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2 12.    The apparatus of claim 1 in combination with a source of high pressure fluid  
3 connected to the second end of the lumen of the elongate delivery tube.

4  
5 13.    The apparatus of claim 3 further comprising:  
6           any of a sensor, transducer, and imaging device carried at the distal end of the  
7 elongate guide tube.

1 14. The apparatus of claim 1 in combination with a processing unit operatively  
2 coupled to any of the sensor, transducer, and imaging device carried at the distal end of  
3 the guide tube.

1 15. A method for removal of contaminants from remote surfaces comprising:

2 (a) providing the high pressure lancing apparatus comprising:

3 (i) an elongate delivery tube having a lumen extending therethrough and  
4 having a first end and a second end connectable to a source of high pressure fluid so as  
5 to allow fluid communication with the delivery tube lumen, the delivery tube having a  
6 second end,

7 (ii) a nozzle operatively coupled to the first end of the delivery tube and  
8 having at least one orifice in fluid communication with the lumen of the delivery tube,  
9 and

10 (iii) means for positioning the nozzle;

11 (b) manipulating the means for positioning the nozzle so that the nozzle is  
12 disposed in proximity of the contaminants;

13 (c) providing high pressure fluid from a source to the lumen of the elongate  
14 delivery tube; and

15 (d) directing high pressure fluid emanating from the nozzle toward the  
16 contaminants.

1 16. The method of claim 15 wherein the means for positioning the nozzle comprises  
2 an elongate guide tube having a lumen extending therethrough and into which the  
3 elongate delivery tube is disposed and wherein (b) comprises:

4 (b1) positioning a distal end of the guide tube in the proximity of the  
5 contaminants; and

6 (b2) manipulating the elongate delivery tube within the lumen of the guide tube  
7 so that the nozzle extends beyond the distal end of the guide tube.

1 17. The method of claim 15 wherein the means for positioning the nozzle comprises  
2 an elongate positioning member secured to the elongate delivery tube and wherein (b)  
3 comprises:

4 (b1) manipulating the elongate positioning member so that the nozzle is  
5 disposed in proximity of the contaminants.

1 18. The method of claim 15 wherein the apparatus further comprises a sensor  
2 carried near the first end of the elongate delivery tube and in communication with a  
3 processing unit near the second end of the elongate delivery tube and wherein the  
4 method further comprises:

5 (e) sensing a condition in the proximity of the nozzle; and

6 (f) transmitting signals associated with the condition from the sensor to the  
7 processing unit.

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1 19. The method of claim 15 wherein the nozzle of the lancing apparatus has a  
2 plurality of orifices and wherein (b) comprises:

3 (b1) directing high pressure fluid from one of the nozzle orifices in a direction  
4 other than the toward the contaminants.

1 20. The method of claim 15 wherein the lancing apparatus further comprises a  
2 plurality of nozzles operatively coupled to the elongate delivery tube and in fluid  
3 communication with the lumen of the elongate delivery tube and wherein (b) comprises:

4 (b1) directing high pressure fluid from one of the nozzles in a direction  
5 substantially opposite the direction from which high pressure fluid is emanating from  
6 another of the plurality of nozzles.